

L 04187-67 ENT(m)/ENT(w)/T/ENT(t)/ETI JJP(c) 30

ACC NR: AT6026547

SOURCE CODE: UR/2776/66/000/046/0037/0040

AUTHOR: Gulyayev, A. P.; Zhadan, T. A.; Mal'tseva, V. S.

ORG: none

TITLE: The effect of titanium on the phase composition of ferritic-austenitic stainless steels

SOURCE: Moscow. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii. Sbornik trudov, no. 46, 1966. Spetsial'nyye stali i splavy (Special steels and alloys), 37-40

TOPIC TAGS: stainless steel, titanium, ferrite, austenite, carbide phase, phase composition, impact strength, hardness, saturation magnetization, quenching, tempering, temperature dependence / OKh18G8N2T stainless steel, OKh18G8N2 steel

ABSTRACT: The effect of 0.4% Ti on the phase composition and mechanical properties of OKh18G8N2T stainless steel was studied. Steel samples were quenched from 1200°C and aged to temperatures up to 900°C. Impact strength, hardness and saturation magnetization were given as functions of tempering temperature. The addition of titanium did not change these properties. In the 600-700°C range a sharp drop in impact strength, an increase in hardness and a lowering of saturation magnetization occurred. Electrolytic etching and x-ray analysis showed that TiC formed in the titanium containing

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steel. In the steel without titanium, $Me_{23}C_6$ and σ -phase formed after prolonged tempering. The TiC , $Me_{23}C_6$ and σ -phase compositions of the two steels were compared after different heat treatments. The presence of titanium caused a sharp decrease in $Me_{23}C_6$, but increased the amount of σ -phase in some cases. Titanium tied up the carbon necessary to form $Me_{23}C_6$ and left a greater amount of chromium in solid solution, as required for σ -phase formation. Changes in the quantities of TiC and $Me_{23}C_6$ were given as functions of time. The precipitation of TiC proceeded faster than that of $Me_{23}C_6$. For OKh18G8N2 steel with titanium the rate of carbide precipitation became constant after about 10 hrs, whereas the amount of $Me_{23}C_6$ continuously increased in the steel without titanium. Orig. art. has: 2 figures, 2 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 002

Card 2/2 *LC*

KOPOSOV, Ye.S., kand. med. nauk; GULYAYEV, A.S.

Exclusion of the damaged section of cellophane during hemo-
dialysis in the "artificial kidney" apparatus produced by
the Scientific Research Institute of Experimental Surgical
Apparatus and Instruments. Urologia 28 no.3:61-62 '63
(MIRA 17:2)

L. Iz laboratorii "iskusstvennoy pochki" (nauchnyy rukovoditel'
prof. N.N. Savitskiy) Voenno-meditsinskoy ordena Lenina akademii
imeni Kirova.

GORYAINOVA, Avgusta Vasil'yevna; GULYAYEV, A.S., inzh., retsenzent [deceased];
ALAVERDOV, Ya.G., inzh., red.; SOKOLOVA, T.F., tekhn.red.; GORDEYEVA,
L.P., tekhn.red.

[Glass-reinforced plastic in machinery manufacturing] Stekloplastiki
v mashinostroenii. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.
lit-ry, 1961. 214 p. (MIRA 14:6)

(Machinery--Construction)
(Glass-reinforced plastics)

GULYAYEV, A.S.; SHPAGIN, A.I.

Method of determining the strength of bonding in bimetal
strips. Trudy Giprotsvetmetobrabotka no.24:298-306 '65.
(MIRA 18:11)

GULYAYEV, A.S.

Rolling of the ASM alloy - Armco iron bimetal. TSvet. met.
38 no.8:69-72 Ag '65. (MIRA 18:9)

GULYAYEV, A.F.; RAKOV, K.M.

Calculating metal pressure on the rolls during the rolling
of bimetals. Izv.vys.ucheb.zav.; tevt.met. 8 no.2:140-146
'65. (MIR: 19:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zhелеznodorozhnogo
transporta.

I. 24429-66 ENT(m)/ENP(w)/ENA(d)/ENP(v)/T/ENP(t)/ENP(k) IJP(c) JD/FA
 ACC NR: AT6006483 SOURCE CODE: UR/2680/65/000/024/0298/0306

AUTHORS: Gulyayev, A. S.; Shpagin, A. I.

ORG: State Scientific Research and Design Institute of Alloys and Nonferrous Metalworking, Moscow (Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov)

TITLE: Method for determination of the strength of bonding of bimetallic components

SOURCE: Moscow. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov. Trudy, no. 24, 1965. Metallovedeniye i obrabotka tsvetnykh metallov i splavov (Metal science and the treatment of non-ferrous metals and alloys), 298-306

TOPIC TAGS: *shear strength, rupture strength, alloy,*
 metallurgic testing machine, iron, bimetal/ ASM alloy, BrS30 alloy, TsAM alloy, A-20 alloy, *R-5, testing machine, Armco iron*
metallurgy

ABSTRACT: It was the object of this investigation to compare different methods for the quantitative determination of coherence strength of bimetallic components. The strength of the following bimetallic joints was tested: alloy ASM - Armco iron,

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ACC NR: AT6006483

lead-bronze ¹⁸BrS30 - ¹⁸low carbon steel, alloys of type ¹⁸TsAM - Armco iron (with aluminum sublayer), aluminum-lead alloy ¹⁸A20 - ¹⁸Armco iron (with aluminum sublayer). The strength of the specimens was tested by three different methods, viz: shear, slip, and breaking strength. The shear strength was determined according to the scheme shown in Fig. 1

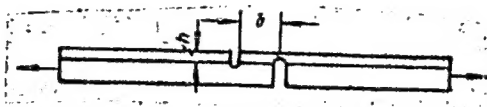


Fig. 1. Specimen for testing of joint strength of bimetallic components (test for shear during tension). b - distance between slots; h - thickness of iron.

and was calculated according to the expression

$$\tau_{f \text{ shear}} = \frac{P_{\max}}{F} \text{ Mn/m}^2 (\text{kg/mm}^2)$$

$$F = ab,$$

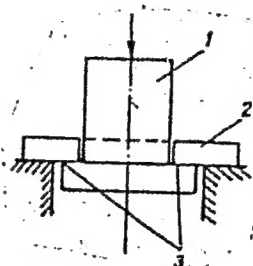
where $\tau_{f \text{ shear}}$ is the shear strength, P_{\max} the maximum applied force, a - the width of the specimen, and b - the distance between the markings. The slip strength was determined on a suitably modified R-5 machine. A schematic of the installation

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is presented. The breaking strength was determined according to the scheme shown in Fig. 2.

Fig. 2. Schematic for the breaking strength test. 1 - plunger, 2 - specimen; 3 - ring, along which the break occurs.



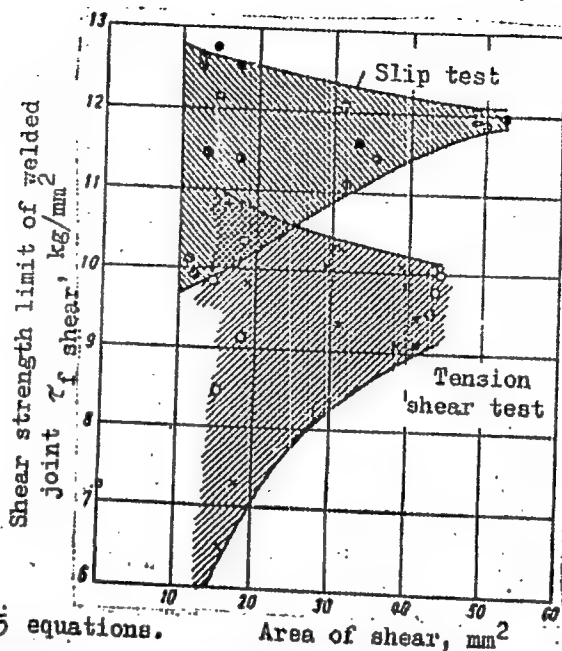
The experimental results are presented graphically (see Fig. 3). It is concluded that the measurement of slip strength affords the most sensitive test for determining the strength of bimetallic joints.

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Fig. 3. Results from tests of bimetallic joint strength of iron - TsAM48-2. Open circles - b/h const (different specimens width); crosses - specimens of constant width.



Orig. art. has: 1 table, 7 graphs and 5 equations.

Area of shear, mm²

Card 4/4ddg SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 005/ OTH REF: 002

GULYAYER, A. V. Physician Dr. Med. Sci.

Dissertation: "Acute Loss of Blood; Changes in Blood Circulation in Acute Post-hemorrhagic Conditions; Experimental and Clinical Investigation." Second Moscow State Medical Inst. imeni I. V. Stalin. 9 Jun 47.

SO: Vechernyaya Moskva, Jun, 1947 (Project #17836)

SLOBODSKOY, A.L. Prof. (Khar'kov)

Review of Perelivaniye krovi [Blood Transfusion] edited by A. A. Bagdasarov and A. V. Gulyayev. Medgiz, 1951. 583 pages. 109 drawings.
In Khirurgiya. No. 10, Oct. 1952, pp. 82-85. (CML 23:3)

TIKHONOVA, Z.I.; STEPANOVA, M.N., kandidat meditsinskikh nauk; MESHALKIN, Ye.N.,
kandidat meditsinskikh nauk; BAKULEV, A.N., professor; GULYAYEV, A.V., pro-
fessor; VOZNESENSKIY, V.P., professor; DMITRIYEV, I.P., professor; OGNEV,
B.V., professor; VAZA, D.L., professor; PETROY, B.A., professor, predsedatel'; DOROFYEV, V.I., sekretar'.

Minutes of the session of the Surgical Society of Moscow and Moscow Province
of June 27, 1952. Khirurgiya no.3:84-88 Mr '53. (MIRA 6:6)

1. Khirurgicheskoye obshchestvo Moskv i Moskovskoy Oblasti.
(Heart--Surgery) (Cardiovascular system--Surgery)

GULYAYEV, A.V.

PETROV, B.A., professor, predsedatel'; DUBEYKOVSKAYA, E.G.' sekretar'; BGAN-TSEV, N.I., kandidat meditsinskikh nauk; TERNOVSKIY, S.D., professor; MELIK-ARUTYUNOV, A.I. kandidat meditsinskikh nauk; PATSIORA, M.D., kandidat meditsinskikh nauk; YELANSKIY, N.N., professor; DAM'YE, H.G.; TAVONIUS, K.N.; GULYAYEV, A.V., professor; KAZANSKIY, V.I., professor; GROZDOV, D.Ye., professor; DOROFYEV, V.I.; LINDEMAN, V.I.; MAKHOV, N.I., dotsent.

Minutes of the session of the Surgical Society of Moscow and Moscow Province of September 12, 1952. Khirurgiia no.3:88-92 Mr '53. (MLRA 6:6)

1. Khirurgicheskoye obshchestvo Moskvyy i Moskovskoy oblasti.
(Spleen--Surgery)

BAKULEV, A.N., redaktor; GAYEVSKAYA, M.S., redaktor; GORIZONTOV, P.D., redaktor; GULYAYEV, A.V., redaktor; DOBRODEYEV, A.V., redaktor; MIL'CHENKO, I.T., redaktor; NEGOVSKIY, V.A., redaktor; NYROVA, P.F., redaktor; PETROV, B.A., redaktor; SARKISOV, S.A., redaktor; SEVERIN, S.Ye., redaktor; SHIKUNOVA, L.G., redaktor; NEYMAN, I.M., redaktor; BOBROVA, Ye.N., tekhnicheskii redaktor

[Transactions of the conference dedicated to problems of pathological physiology and therapy of the terminal states in the clinic and in first aid practice; December 10-12, 1952] Trudy Konferentsii posvyashchennoi probleme patofiziologii i terapii terminal'nykh sostoyanii v klinike i praktike neotlozhnoi pomoshchi, 10-12 Dekabrya 1952 g. Moskva, Gos. izd-vo meditsinskoi lit-ry, 1954. 329 p. (MLRA 8:3)

1. Konferentsiya posvyashchennaya probleme patofiziologii i terapii terminal'nykh sostoyanii v klinike i praktike neotlozhnoi pomoshchi, Moscow, 1952.

(Physiology, Pathological) (Death, Apparent)

BAKULEV, A.N.; GULIAYEV, A.V., professor.

Sergei Ivanovich Spasokukotskii, physician, scientist, and pedagogue;
10th anniversary of his death. Khirurgia no.1:3-10 Ja '54. (MLRA 7:5)

1. Deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR.
(Spasokukotskii, Sergei Ivanovich, 1870-1943)

GULYAYEV, A.V., professor

Surgical treatment of mitral stenosis (indications and surgical techniques.) Khirurgiia no.8:3-11 Ag. '55. (MLRA 9:2)

1. Iz gospi'tal'noy khirurgicheskoy kliniki pediatricheskogo fakul'teta II Moskovskogo meditsinskogo instituta imeni I.V. Stalina.
(MITRAL STENOSIS, surg.
indic. & technic)

ABRAMYAN, A.Ya., prof.; ATABEKOV, D.N., prof.; VOBOYTSOV, V.I., kand.
med. nauk; GASPARYAN, A.M., prof.; GREBENSHCHIKOV, G.S., prof.;
DZHAVAD-ZADE, M.D., kand. med. nauk; DUNAYEVSKIY, L.I., dots.,
prof.; LOPATKIN, N.A., dots.; POMERANTSEV, A.A., dots.;
PYTEL', A.Ya., prof.; RIKHTER, G.A., prof.; RUSANOV, A.A.,
prof.; SMIRNOV, A.V., prof.; SYROVATKO, F.A., prof.;
TSULUKIDZE, A.P., prof.; SHAPIRO, I.N., prof.; EPSHTEYN, I.M.,
prof.; PETROVSKIY, B.V., prof., otv. red.; BAKULEV, A.N.,
akademik, red.; GULYAYEV, A.V., prof.; YEGOROV, B.G., prof.,
red.; KUPRIYANOV, P.A., prof., red.; PANKRAT'YEV, B.Ye., prof.,
red.; FILATOV, A.N., prof., red.; CHAKLIN, V.D., prof., red.
GORELIK, S.L., red.; GABERLAND, M.I., tekhn. red.

[Multivolume manual on surgery] Mnogotomnoe rukovodstvo po
khirurgii. Moskva, Gos. izd-vo med. lit-ry. Vol.9. [Surgery
of the urinary and genital organs and the retroperitoneal
space] Khirurgia mochevykh i polovykh organov i zabriushin-
nogo prostranstva. 1959. 630 p. (MIRA 15:4)

1. Deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR (for
Petrovskiy, Yegorov, Kupriyanov).

(RETROPERITONEAL SPACE--SURGERY)

(GENITOURINARY ORGANS--SURGERY)

ANICHKOV, M.N., dots.; ANTELAVA, N.V., prof.; BISENKOV, N.P., kand.
med. nauk; BOGUSH, L.K., prof.; GRIGOR'YEV, M.S., prof.;
DYSKIN, Ye.A., kand. med. nauk; KEVESH, Ye.L., prof.; KOLESOV, A.P.;
KOLESOV, V.I., prof.; KUPRIYANOV, P.A., prof.; LINBERG, B.E.,
prof.; MAKSIMENKOV, A.N., prof.; OSIPOV, B.K., prof.;
SAVITSKIY, A.I., prof.; UVAROV, B.S.; UGLOV, F.G., prof.;
KHOLDIN, S.A., prof.; PETROVSKIY, B.V., prof., otv. red.;
BAKULEV, A.N., akademik, red.; GULYAYEV, A.V., prof., red.;
YEGOROV, B.G., prof., red.; PANKRAT'YEV, B.Ye., prof., red.;
PYTEL', A.Ya., prof., red.; RIKHTER, G.A., prof., red.;
FILATOV, A.N., prof., red.; CHAKLIN, V.D., prof., red.;
RYBUSHKIN, I.N., doktor med. nauk, red.; RULEVA, M.S., tekhn.
red.

[Multivolume manual on surgery] Mnogotomnoe rukovodstvo po
khirurgii. Moskva, Medgiz. Vol.5. [Chest surgery; thoracic wall,
pleura, and lungs] Khirurgiia grudi; grudnaia stenka, plerva i
legkie. 1960. 727 p. (MIRA 15:3)

1. Chlen-korrespondent Akademii meditsinskikh nauk SSSR (for
Antelava, Bogush, Maksimenkov, Savitskiy, Kholdin, Chaklin).
 2. Deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR (for
Kupriyanov, Petrovskiy, Yegorov).
- (CHEST—SURGERY)

BAKULEV, A.N., akad.; BLOKHIN, N.N.; BOGUSH, L.K.; VELIKORETSKIY, A.N., prof.;
VOZNESENSKIY, V.P., prof., zasl. deyatel' nauki [deceased]; GULYAYEV,
A.V., prof.; DANILOV, I.V., prof.; DUBOV, M.D., doktor med. nauk; KA-
ZANSKIY, V.I., prof.; LIMBERG, A.A.; LINBERG, B.E., zasl. deyatel'
nauki, prof.; MEDVEDEV, I.A., dots.; MESHALKIN, Ye.N., prof.; MIRONO-
VICH, N.I., doktor med. nauk; NIKOLAYEV, O.V., prof.; NIFONTOV, B.V.,
doktor med. nauk; PETROVSKIY, B.V.; PRIOROV, N.N. [deceased]; RIKHTER,
G.A., prof.; ROVNOV, A.S., prof.; RUFANOV, I.G.; STRUCHKOV, V.I.;
SHRAYBER, M.I., doktor med. nauk; GORELIK, S.L., dots., red.; YELANSKIY,
N.N., red.; SALISHCHEV, V.E., zasl. deyatel' nauki, prof. [deceased];
RYBUSHKIN, I.N., red.; BUL'DYAYEV, N.A., tekhn. red.

[Surgeon's reference book in two volumes] Spravochnik khirurga v dvukh
tomakh. Pod obshchei red. A.N. Velikoretskogo i dr. Moskva, Medgiz.
(MIRA 14:12)
Vol. 1. 1961. 564 p.

1. Deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR (for Blokhin,
Petrovskiy, Priorov, Rufanov, Limberg). 2. Chlen-korrespondent Akademii
meditsinskikh nauk SSSR (for Bogush, Struchkov, Yelanskiy).
(SURGERY)

BOGOSLAVSKIY, R.V., prof.; BREGADZE, I.L., prof.; VELIKORETSKIY, A.N.,
prof.; VINOGRADOV, V.V., doktor med. nauk; GROZDOV, D.M., prof.;
GULYAYEV, A.V., prof.; DZHAVADYAN, A.M., doktor med. nauk;
KRAVCHENKO, P.V., prof.; LOBACHEV, S.V., prof.; NIKOLAYEV, O.V.,
prof.; PYTEL', A.Ya., prof.; SMIRNOV, A.V., prof.; FAYERMAN, I.L.,
prof.; FUTORYAN, Ye.S.; SHELAGU, A.A., zas. deyatel' nauki, prof.;
BOLIAN, R.O., prof.[deceased]; PETROVSKIY, B.V., prof., otv. red.;
SENCHILO, K.K., tekhn. red.

[Multivolume manual on surgery]Krugotomnoe rukovodstvo po khirurgii.
Otv.red.B.V.Petrovskii. Moskva, Medgiz. Vol.8.[Surgery of the liver,
biliary tract, pancreas, and spleen]Khirurgiia pecheni, zhelchnykh
putei, podzheludochnoi zhelezy i selebenki. Red.toma A.V.Guliaev.
1962. 659 p.

(MIRA 15:6)

1. Deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR (for Petrovskiy).
(LIVER---SURGERY) (PANCREAS---SURGERY) (SPLEEN---SURGERY)

BAKULEV, A.N., akademik; BUNYATYAN, A.A., kand. med. nauk;
BURAKOVSKIY, V.I., doktor med. nauk; BUYALOV, V.M., dots.;
GULYAYEV, A.V., prof.; ZAKETSKIY, V.V., doktor med. nauk;
IVANOV, V.A., prof.; KOLESNIKOV, S.A., prof.; LOBACHEV,
S.V., prof.; LOPUKHIN, Yu.N., prof.; MURATOVA, Kh.N., doktor
med. nauk; PETROVSKIY, B.V., zasl. deyatel' nauki RSFSR, prof.;
SAVEL'YEV, V.S., prof.; SERGEYEV, V.M., doktor med. nauk;
SOLOV'YEV, G.M., prof.; SOLOV'YEVA, I.I.; BURAKOVSKIY, V.I.,
red.

[Multivolume manual on surgery] Mnogotomnoe rukovodstvo po khirurгии. Moskva, Meditsina. Vol.6. Pt.1. 1965. 577 p.
(MIRA 18:10)

1. Deystvitel'nyy chlen AMN SSSR (for Petrovskiy).

KRASNOVSKIY, A.A.; YEROKHIN, Yu.Ye.; GULYAYEV, B.A.

Effect of temperature on the luminescence of bacterioviridin and its state in photosynthetizing bacteria. Dokl. AN SSSR 152 no.5:1231-1234 0 '63. (MIRA 16:12)

1. Institut biokhimii im. A.N.Bakha AN SSSR i Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova. 2. Chlen-korrespondent AN SSSR (for Krasnovskiy).

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L 8709-65 EWT(1)/EWT(m)/EEC(b)-2 IJP(c)/APGC(b)/ESD(gu)/BSH/AS(mp)-2/AFWL/ESD(t)/
 ASD(a)-5 RM
 ACCESSION NR: AP4045638 8/0020/64/158/002/0450/0460

AUTHOR: Litvin, F. F.; Gulyayev, B. A.

TITLE: Luminescence and absorption spectra of chlorophyll-a monolayers and films

SOURCE: AN SSSR. Doklady*, v.158, no. 2, 1964, 460-463

TOPIC TAGS: tetrapyrrol pigment, chlorophyll a, luminescence spectrum, absorption spectrum, chlorophyll absorption spectrum, chlorophyll luminescence spectrum

ABSTRACT: An attempt has been made to detect the luminescence of chlorophyll-a in monolayers, to investigate its spectra, and to determine the dependence of the absorption and luminescence spectra on pigment concentration, temperature, and certain other factors. The results were compared with data obtained previously for live leaves or algae. The luminescence of chlorophyll in monolayers was definitely established at room temperature and at low temperatures. An increase in the concentration of chlorophyll resulted in a gradual weakening of shortwave maxima and the appearance of new maxima in the longwave

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ACCESSION NR: AP4045638

range. It was assumed that these phenomena are caused by the aggregation of chlorophyll. This fact, as well as the observation that the new maxima become predominant in the luminescence spectrum, while the corresponding maxima in the absorption spectrum have not yet been developed, can be explained by the migration of excitation energy from chlorophyll shortwave forms to longwave forms which are responsible for the longwave maxima. A parallel is drawn with energy migration in live plants. Low temperatures cause a considerable increase in the intensity of the longwave maxima, but have a lesser effect on the shortwave maxima. The general character of the temperature changes in the luminescence spectra is close to that in vivo. Some monolayers are sensitive to light and disaggregate and bleach under its influence. Longwave forms (absorption maximum, 740 m) are more stable against the effects of light and seem also to protect the shortwave forms. Bleaching was observed both in the presence and in the absence of air; it was inhibited at -196°C ; heating to 100°C did not markedly affect the luminescence spectra of the specimens. All these facts indicate the formation of aggregated chlorophyll states under certain conditions, and energy migration from less aggregated forms to longwave, densely packed forms. A certain resemblance be-

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ACCESSION NR: AP4045638

tween the model systems studied and live systems exists. However, differences are to be expected because of the presence of protein-lipid complexes which accompany the pigments in vivo. It was observed that the spectra of monolayers and films, unlike those of living organisms, are not sensitive to heating. "Gratitude is expressed to A. A. Krasnovskiy for his valuable advice and continuous attention to the study." Orig. art. has: 4 figures.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University)

SUBMITTED: 19Feb64

ATD PRESS: 3112

ENCL: 00

SUB CODE: OC,OP

NO REF SOV: 004

OTHER: 003

Card 3/3

LITVIN, F.F.; GULYAYEV, B.A.; SINESHCHEKOV, V.A.

Aggregated forms of chlorophyll-a, chlorophyll-b, and β -carotene in monolayers and membranes; migration of energy between them and within the complex (chlorophyll-a + β -carotene). Dokl. AN SSSR 162 no.5:1184-1187 Je '65. (MIRA 18:7)

1. Moskovskiy gosudarstvennyy universitet. Submitted June 27, 1964.

L 39870-66 EWT(1) SCTB DD/GE-2

ACC NR: AP6018144

SOURCE CODE: UR/0020/65/162/005/1184/1187

AUTHOR: Litvin, F. F.; Gulyayev, B. A.; Sineshchikov, V. A. 118

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Aggregated forms of chlorophyll¹ A, chlorophyll B, and beta-carotene in monolayers and films; migration of energy between them and in the 'chlorophyll A + beta-carotene' complex

SOURCE: AN SSSR. Doklady, v. 162, no. 5, 1965, 1184-1187

TOPIC TAGS: chlorophyll, absorption spectrum, pigment, plant chemistry

ABSTRACT: The absorption spectra of monolayers and thin films of predominantly trans-forms of carotene differ from the spectra of the pigment in the initial solution by a shift in the long-wave direction and predominance of the longest wave maximum, 520 millimicrons. When the films are stored, a new form appears, with an even more substantial "red shift" to 536-540 millimicrons. This shift is explained by strong interaction of the chromophores and the appearance of aggregates (polymers and microcrystals of the pigment). In mixed films of chlorophyll and beta-carotene, an additive spectrum was obtained only at a high relative concentration of carotene ($C_{\text{chlorophyll}}/C_{\text{carotene}} \leq 0.6$), indicating a mutual influence of the pigments on the conditions of their aggregation. The migration of energy between beta-carotene and chlorophyll A was investigated according to the spectra of excitation of

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COOLING OF A STEEL INGOT. V. M. Tagiev and B. H. Gulvayev. *Metallurg* 14, No. 8, 23-28 (1939); cf. C. A. 33, 16131. —A 7-ton octagonal ingot 830 mm. thick at the top and 790 mm. at the bottom reached the temp. of the liquidus throughout the entire ingot within 10 min. after pouring. The center of the ingot remained at const. temp. for 190 min. before solidification began and thereafter the cooling rate was faster than in any other part of the ingot. The pouring temp. had very little effect on cooling as superheating only accounted for 4-6% of the total heat capacity of the steel. The ingot mold absorbed 70-85% of the heat given off during cooling and radiation accounted for 9.8-22.8%, the remainder being lost by convection. H. W. Rathmann

ASW-SLA DETAILING LITERATURE CLASSIFICATION

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CA

Thermal work of chill molds for ingots of 1150-3000 kg.
A. A. Markaryants, B. R. Galyayev and M. V. Zotov.
Sov. N.S.I., No. 1, 34-8 (1941). An extensive study was
made of the thermal work of large chill molds. Temp.
curves were plotted for the rise of temp. and heat dis-
tribution throughout the walls of the molds. The heat
balance showed that the mold accumulates 75.5-84.8% of
the total heat. The results of this study are intended to
act as guide in selecting materials for building chill molds
of this size and detg. their characteristics. M. Hosh

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

Behavior of nonmetallic inclusions in the process of crystallization of acid martensite steel. B. B. Gulyaev. *Rail. and. st. U. R. S. S. R. Jour. tech. 1942, No. 3, 1, 57-58.* In liquid melt at pouring temp. the greatest part of nonmetallic inclusions is in the form of disperse phase. The columnar crystals cease their growth upon reaching a definite min. temp. gradient in the liquid part of the casting. Mixing of the metal during pouring and sedimentation are responsible for the intensive coagulation of nonmetallic inclusions at the beginning of hardening of the casting. The coagulation of nonmetallic inclusions can be combated by the use of min. radius of casting and by the most quiet method of pouring the molten metal. Pouring of metal at lowest practicable temp. also is advisable. G. M. Kozlovskii

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

1ST AND 2ND ORDERS

GULYAYEV, B.B.

DOC TECH SCI

Dissertation: "Processes of the Origin of Heterogeneity in Steel Ingots and Castings."

18 October 49

Inst of Metallurgy imeni A.A. Baykov, Acad Sci USSR.

SO Vecheryaya Moskva
Sum 71

GULYAYEV, B. B.

USSR/Physics - Strength

11 Feb 50

"Periodicity of the Mechanical Properties of Elements,"
B. B. Gulyayev

"Dok Ak Nauk SSSR" Vol LXX, No 5, pp 797-799

Graphs yield strength (tensile) vs Brinell and Moh hardness. Graphically demonstrates periodicity of yield strength, relative elongation under tension, and modulus of elasticity of elements in tempered state at room temperature as function of atomic number of elements in periodic table. Submitted by 14 Dec 49 by Acad S. I. Vavilov.

165T65

CA

7

Periodicity of the effect of additions of elements on the mechanical properties of copper, silver, and gold. I. H. Gulvargy, *Doklady Akad. Nauk S.S.S.R.* 74, 1080-82 (1956), cf. C.I. 44, 8710/. Rptl. data on the tensile strength and percentage elongation of binary alloys of Cu, of Ag, and of Au were obtained from the literature. The effect of addn. of 1% an element on the property in the range of solid soln. is expressed by a coeff. for the annealed alloy. The coeffs. can be either pos. or neg. The coeffs. do not support R. Austen's proposal that relative at. size det. the sign of the coeff. The coeffs. show a marked periodicity with increasing at. no. of the addn. element. The strength coeff. reaches a max. near the center of a period, while the percentage elongation reached a min. Generally Au showed the greatest effect of a given element and Cu the least effect.

A. G. Guy

1951

9

CA

Periodicity of the influence of alloys on the mechanical properties of metals. B. M. Gulyaev: Doklady Akad. Nauk S.S.S.R. 73, 25-8(1950); cf. C.A. 44, 8710; 45, 85514. Data from the literature were used to determine the influence of alloying elements on Mg, Zn, Cd, Pb, Sn, Al, Fe, Ni, Pt, and Pd in the same manner as was previously done for Cu group elements. The same periodicity in tensile strength and percentage elongation increase was found, and generally a max. strength increase coincided with a max. elongation decrease. The max. effect was found in each period near its center, and the max. was greater for earlier periods. Alloying elements near the base metal were less effective and often caused the strength to decrease.

A. G. Guy

.1957

USSR/Miscellaneous-Metallurgy

Card 1/1

Authors : Gulyaev, B. B., Shpeyzman, V. M., and Kevalenko, P. E.

Title : Metal filling of a channel in a sand-mold

Periodical : Lit. Preizv. 1, 15 - 17, Jan-Feb 1954

Abstract : The basic specific features of metal filling in a sand-mold channel are as follows: 1) During the process of mold-filling the temperature of the mold decreases but its viscosity increases. The filling of the mold is done in a comparatively short time within which no stationary motion may be obtained. 2) Chilling of the metal leads to the appearance of solid phases which may have already originated during the filling of the mold and this is the reason for discontinuation of motion lasting till the completion of filling. The ability of the metal to fill the mold is usually defined as its flowability. Three references. Table, graphs.

Institution:

Submitted :

CHVORINOV, N.; GULYAYEV, B.B., professor, doktor tekhnicheskikh nauk, redaktor;
SYSOYEV, V.Ye., redaktor; GERASIMOVA, Ye.S., tekhnicheskiiy redaktor

[Hardening of castings; a collection of articles. Translated from the
Czech.] Zatverdevanie otlivok; sbornik statei. Moskva, Izd-vo ino-
strannoi lit-ry, 1955. 140 p. (MLRA 9:2)
(Founding)

GULYAYEV B.B.

AL'TGAUZEN, O.N., kandidat fiziko-matematicheskikh nauk; BERNSTEYN, M.I., kandidat tekhnicheskikh nauk; BLANTER, M.Ye., doktor tekhnicheskikh nauk; BOKSHTAYN, S.Z., doktor tekhnicheskikh nauk; BOLKHOVITINOVA, Ye.N., kandidat tekhnicheskikh nauk; BORZDYKA, A.M., doktor tekhnicheskikh nauk; BUNIN, K.P., doktor tekhnicheskikh nauk; VINOGRAD, M.I., kandidat tekhnicheskikh nauk; VOLOVIK, B.Ye., doktor tekhnicheskikh nauk [deceased]; GAMOV, M.I., inzhener; GELLER, Yu.A., doktor tekhnicheskikh nauk; GORELIK, S.S., kandidat tekhnicheskikh nauk; GOL'DENBERG, A.A., kandidat tekhnicheskikh nauk; GOTLIB, L.I., kandidat tekhnicheskikh nauk; GRIGOROVICH, V.K., kandidat tekhnicheskikh nauk; GULYAYEV, B.B., doktor tekhnicheskikh nauk; DOVGALOVSKIY, Ya.M., kandidat tekhnicheskikh nauk; DUDOVTSYEV, P.A., kandidat tekhnicheskikh nauk; KIDIN, I.N., doktor tekhnicheskikh nauk; KIPNIS, S.Kh., inzhener; KORITSKIY, V.G., kandidat tekhnicheskikh nauk; LANDA, A.F., doktor tekhnicheskikh nauk; LEYKIN, I.M., kandidat tekhnicheskikh nauk; LIVSHITS, L.S., kandidat tekhnicheskikh nauk; L'VOV, M.A., kandidat tekhnicheskikh nauk; MALYSHEV, K.A., kandidat tekhnicheskikh nauk; MEYERSON, G.A., doktor tekhnicheskikh nauk; MINKOVICH, A.N., kandidat tekhnicheskikh nauk; MOROZ, L.S., doktor tekhnicheskikh nauk; NATANSON, A.K., kandidat tekhnicheskikh nauk; NAKHIMOV, A.M., inzhener; NAKHIMOV, D.M., kandidat tekhnicheskikh nauk; POGODIN-ALEKSEYEV, G.I., doktor tekhnicheskikh nauk; POPOVA, N.M., kandidat tekhnicheskikh nauk; POPOV, A.A., kandidat tekhnicheskikh nauk; RAKHSHTADT, A.G., kandidat tekhnicheskikh nauk; ROZEL'BERG, I.L., kandidat tekhnicheskikh nauk;

(Continued on next card)

AL'TGAUZEN, O.N.---- (continued) Card 2.

SADOVSKIY, V.D., doktor tekhnicheskikh nauk; SALTYSOV, S.A.,
 inzhener; SOBOLEV, N.D., kandidat tekhnicheskikh nauk; SOLODIKHIN,
 A.G., kandidat tekhnicheskikh nauk; UMANSKIY, Ya.S., kandidat
 tekhnicheskikh nauk; UTEVSKIY, L.M., kandidat tekhnicheskikh nauk;
 FRIDMAN, Ya.B., doktor tekhnicheskikh nauk; KHIMYSHIN, F.F.,
 kandidat tekhnicheskikh nauk; KHRUSHCHEV, M.M., doktor tekhnicheskikh nauk; CHERNASHKIN, V.G., kandidat tekhnicheskikh nauk; SHAPIRO,
 M.M., inzhener; SHKOL'NIK, L.M., kandidat tekhnicheskikh nauk;
 SHRAYBER, D.S., kandidat tekhnicheskikh nauk; SHCHAPOV, N.P., doktor
 tekhnicheskikh nauk; GUDTSOV, N.T., akademik, redaktor; GORODIN, A.M.
 redaktor izdatel'stva; VAYNSHTAYN, Ye.B., tekhnicheskiy redaktor

[Physical metallurgy and the heat treatment of steel and iron; a
 reference book] Metallovedenie i termicheskaya obrabotka stali i
 chuguna; spravochnik. Pod red. N.T.Dudtsova, M.L.Bernshteina, A.G.
 Rakhshadta. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i
 tsvetnoi metallurgii, 1956. 1204 p. (MLRA 9:9)

1. Chlen -korrespondent Akademii nauk USSR (for Bunin)
 (Steel--Heat treatment) (Iron--Heat treatment)
 (Physical metallurgy)

Gulyayev, B.B.

Distr: 4E4j/4E2c

✓ The solidification of alloys. B. B. Gulyayev and O. H. Martinskii. *Novos v Teorii i Praktike Protsessov* (Moscow-Leningrad: Gosudarst. izdatel. Mashinostroitel. Lit.) *Sbornik* 1956, 57-70; *Referat. Zhur.*, Mei. 1954, Abstr. No. 12162. — Studies were conducted, by the thermal method, on the solidification of alloys of various composition: solid solns. of Al with 8.7, 23.9, and 42.4% Zn; alloys with a eutectic of Al with 3.8, 7.5, 10.9, and 12.3% Si; alloys with a peritectic of Al with 28.9, 42.5, and 33.0% Ni. The alloys melted and formed into cylinders 233-75 mm. in diam. and 0.8 m. high. Chromel-alumel thermocouple junctions were inserted at the surface, in the center of the ingot, and also spaced 25, 50, 75, and 100 mm. from the center. A record of the temp. was made by using a 8-point electronic potentiometer. From the graphically constructed cooling curves, the time of passage through the separate stages (crit. points) is characterized at different points in the cross section of the casting. For Al-Zn alloys, solidification is characterized by 2 curves (for liquidus and for solidus); for Al-Si alloys, 3 (liquidus, beginning and end of eutectic transformation); for Al-Ni, 5 (liquidus, beginning of peritectic transformation, end of the conversion $Al_3Ni \rightarrow AlNi$, end of the pptn. of Al_3Ni from the melt, and solidus). In all cases solidification was strictly sequential, i.e., each stage of solidification, in whatever layer of the ingot was recorded later than that of the neighboring layer if the latter was closer to the surface. Solidification of ingots of pure Al conforms to the parabolic law for the first $\frac{1}{2}$ of its radius. The alloys show sharply different graphs. Thus, e.g., the curves for the Al-Zn alloys show continuous slowing down of "spread" of the liquidus in the depth of the ingot and continuous acceleration of spread of the solidus. Thus also does the solidification of the eutectic alloy Al + 12.31% Si depart from the parabolic law; however it also crystallizes at a const. temp., as does pure Al. C. H. Fushman.

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DM

Q

GULYAYEV, B.B.

Conference on metal solidification. Izv.AN SSSR Otd.tekh.nauk no.3:
174-176 Mr '56. (MIRA 9:7)
(Moscow--Solidification--Congresses)

GULYAYEV, B.B.

✓ Influence of casting temperature on solidification of steel
castings. B. B. Gulyayev, V. I. Lopyrev, and P. H. Kova-
lenko. *Izveste Prochnost* 1958, No. 3, 20-2. A study of
90-mm diam. and 180-mm long castings made in green sand
showed that the elimination of the effect of overheating and
solidification occur together and parallel. With slight over-
heating, solidified skin forms on contacting the mold and
grows according to the square-root law. Pronounced over-
heating holds the metal liquid for some time after the contact
with the mold, and solidification then follows almost a
straight-line law. Overheating has but slight effect on total
solidification time. J. D. Cat

GULYAYEV, B.B.

800, 100

✓ 1659* (Russian) Investigating Non-Metallic Inclusions in Castings With Radioactive Isotopes. Izledovanie zasorov v otlivkakh pri pomoshchi radioaktivnykh izotopov. B. B. Gulyayev, Iu. F. Burovskii, Z. V. Sigaleva, and E. S. Sokolova. Engrngg. Prod. Tech. 1956, no. 8, Aug. 1956, p. 25-27.

Studied primarily the inclusions carried into the casting from the walls of the mold. The W-108 isotope was mixed into the molding sand and the amount of inclusions in the casting was determined by autoradiography.

100 100 100

GULYAYEV, B.B., doktor tekhnicheskikh nauk; DEMINA, L.G., inzhener.

Control of castings by means of radioactive isotopes. Lit.proizv.
no.9:18-20 S '56. (MLRA 9:11)

..(Founding--Quality control)
(Radioisotopes--Industrial applications)

GULYAYEV, B.B., doktor tekhnicheskikh nauk; GORYUNOV, I.I., kandidat tekhnicheskikh nauk.

Collected works on "Heat treatment and properties of steel castings." Lit.proizv. no.9:29-30 S '56. (MLRA 9:11)
(Steel castings--Heat treatment)

GULYAYEV, B.B.

✓13266* (Russian.) Solidification of Ingots and Castings.
Zatverdevanie slitkov i otlivok. N. T. Gudtsor and B. B.
Gulyayev. Vestnik Akademii Nauk SSSR, v. 20, no. 5, May 1978,
p. 22-28.
A general review of the historical development of the theory
of crystallization in ingots. Special attention is given to the
gradual crystallization theory.

2

of

Gulyayev K.B.

~~KHINKIN~~, Mark I'vovich; GULYAYEV, B.B., nauchnyy red.; ISAYEV, V.A., red.;
FRUMKIN, P.S., tekhn. red.

[Improving the mechanical properties and increasing the solidity of
steel castings] Uluchshenie mekhanicheskikh svoistv i povyshenie
plotnosti stal'nykh otlivok. Leningrad, Gos. soizuznoe izd-vo sudo-
stroit. promyshl., 1957. 109 p. (MIRA 11:7)
(Steel castings)

SOV/137-58-9-18674

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 75 (USSR)

AUTHORS: Gulyayev, B.B., Magnitskiy, O.N.

TITLE: Physicochemical Processes in the Solidification of an Ingot
(Fiziko-khimicheskiye protsessy zatverdevaniya slitka)

PERIODICAL: V sb.: Fiz.-khim. osnovy proiz-va stali. Moscow, AN SSSR,
1957, pp 659-682. Diskuss. pp 781-791

ABSTRACT: This is a description of the results of an investigation of the processes occurring in the solidification of Al and of various alloys thereof with Zn, Si, and Ni. The methods used involved measurement of temperature and pouring the metal out of the mold; comparison of the parameters of the crystallization process with phase diagrams of the corresponding alloys was also employed. Ingots measuring 250x710 mm made by rising (bottom) pouring were subjected to temperature measurement by means of 6 chromel-alumel thermocouples arranged along a radius of the middle cross section of the ingot. Temperature curves were derived for alloys forming solid solutions (with Zn), with eutectic transformations (with Si) and with peritectic transformations (with Ni). At the instant when the metal

Card 1/3

SOV/137-58-9-18674

Physicochemical Processes in the Solidification of an Ingot

reached the level of the thermocouples, reheating was stopped completely and the process of solidification began practically at the liquidus temperature. No supercooling of the metal was observed. The liquidus and the peritectic and eutectic transformation points were recorded. The solidus point is weakly defined in Al-Zn alloys. The pouring experiments were run with ingots of 105x260 mm diam. The resultant ingot bodies were cut open and investigated. Gamma photography of the cut ingots was performed, and their wall thicknesses were compared with the results of analyses of prior temperature measurements by the method of similarity. Some inconsistency was found in the data obtained. This was explained by the fact that when the metal was poured into ingots, a pourability limit comes into being that does not agree with the front of crystallization of the metal, since some of the crystals are removed from the two-phase layer while a portion of the liquid remains between the growing dendrites. Curves of solidification were drawn in dimensionless coordinates for all of the alloys investigated. These determined all the phases of solidification of the metal of alloys as one of the components is varied. It is asserted that both pure Al and all the alloys are subject to the law of successive crystallization. The concept that ingots solidify from a deeply supercooled state is refuted. The process of solidification of ingots from pure metals and eutectic alloys is defined as one of removal of the heat

Card 2/3

SOV/137-58-9-18674

Physicochemical Processes in the Solidification of an Ingot

of crystallization through the metal previously solidified, while in the case of alloys hardening over a temperature interval this occurs via a liquid phase. It is noted that the mechanism of solidification is the same for all metals and alloys. A law of successive crystallization is formulated: All processes of transformation occurring in the solidification of ingots or castings of metals and their alloys begin at the surface and gradually progress toward the axis. The boundary of each transformation moves at its own speed, but in a rigorous order of succession.

V.N.

1. Metals--Processing
2. Metals--Crystallization
3. Metals--Temperature factors
4. Thermocouples--Performance
5. Metals--Phase studies

Card 3/3

GULTAYEV, B.B.; KOLACHEVA, O.V.; LUPYREV, I.I.; SHAPRANOV, I.A.

"Casting in shell molds; review of foreign publications" by N.A.
Sokolov. Lit.proizv. no.1:27-28 Ja '57. (MIRA 10:3)
(Founding) (Shell molding (Founding))

GULYAYEV, B.B.

18
Properties of cast alloys. B. B. Gulyayev, I. A. Shap-
ranov, V. M. Shpilman, and F. R. Kovalenko. *Zashchita*
Proizvodstva 1957, No. 2, 11-16. Mech. properties, harden-
ability, fluidity, and casting characteristics are given for C
0.3-0.4, Mn 0.50-0.93, Si 0.17-0.37, Cr 0.30-1.00, with
0.20-0.40 Mo or 0.50-0.80 W with and without 1.30-1.90%
Ni steel and of C 0.25-0.35, Mn 0.25-0.50, Si 0.70-1.10, Cr
0.70-1.0, Ni 1.30-1.60, Cu 1.30-1.60% before and after heat-
treatment. L. D. Gut.

1-4E2C

9/10/57

RECORDED

GULYAYEV, B.B.

Conference on the shrinkage of metals. Izv. AN SSSR. Otd. tekhn. nauk
no. 2: 166-168 F '57. (MLRA 10:5)
(Metallurgy) (Founding)

"APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R000617320011-0

GULAYEV, B. B.

APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R000617320011-0"

practical fact of contact with magnetic fields. Min-
analytical aspects of contact with hot steel are
described.

(GULYAYEV, B. D.)

25(1)

PHASE I BOOK EXPLOITATION SOV/1440

Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy
promyshlennosti. Leningradskoye oblastnoye pravleniye

Lit'ye povyshennoy tochnosti (High-precision Casting) Moscow,
Mashgiz, 1958. 196 p. (Series: Its: Sbornik, kn.45)
7,000 copies printed.

Ed.: A.N. Sokolov; Tech. Ed.: L.V. Sokolova; Managing Ed. for
Literature on Machine-building Technology (Leningrad Division,
Mashgiz): Ye. P. Naumov, Engineer.

PURPOSE: This book is intended for engineers and technicians at
foundries and planning and research institutes.

COVERAGE: The book contains the transactions of a special
conference called in November, 1956, by the Leningrad Oblast
Administration of the Nauchno-tekhnicheskoye obshchestvo NTO
(Scientific and Technical Society of the Machine-building
Industry). The articles describe advanced techniques used in

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CIA-RDP86-00513R000617320011-0"

High-precision Casting

SOV/1440

precision-casting processes such as shell molding, investment casting, pressure die casting, press die casting (called in Russian "forging of liquid metal"), and suction casting. Special attention is given to the production of large precision castings, one of the principal problems in the industry. At the same time, methods of improving the precision of sand-mold castings are examined. Experience gained in the mechanization of precision-casting and shell-molding processes is reported. Information is given on the present state of precision casting, both in the USSR and elsewhere. No personalities are mentioned.

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Gulyayev, B.B. Production of Precision Castings Outside the Soviet Union

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Shub, I. Ye. [Chairman, Committee on Special Methods of Casting, Leningrad Oblast Administration of the Scientific

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High-precision Casting

SOV/1440

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AVAILABLE: Library of Congress

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PHASE I BOOK EXPLOITATION

SOV/1500

Vasilevskiy, P. F., B.B. Gulyayev, D.P. Ivanov, V.V. Ioda, I.P. Karev,
G.I. Kletskin, A.G. Korotkov, A.S. Murakhin, Yu.A. Nekhendzi, P.G.
Petrov, and M.A. Smelov

Liteynaya tekhnika; 2-ya Mezhdunarodnaya vystavka liteynoy tekhniki i liteynyye
tsekhi FRG i GDR (Foundry Technology; Second International Exhibition of
Foundry Technology and the Foundries of the FRG and GDR) Moscow, Mashgiz, 1958.
212 p. 3,500 copies printed.

Ed.: P.F. Vasilevskiy; Ed. of Publishing House: A.I. Sirotin, Engineer; Tech. Ed.:
A.Ya. Tikhonov; Managing Ed. for Literature on Heavy Machine Building (Mashgiz):
S.Ya. Golovin, Engineer.

PURPOSE: The purpose of this book is to acquaint readers with new developments in
foundry technology as presented at the 23rd International Congress of Foundrymen
held in Dusseldorf, Germany in 1956.

COVERAGE: The Soviet delegation under the leadership of P.G. Petrov, Engineer, and
his deputy D.P. Ivanov, along with nine other engineers, attended the Congress of

Card 1/6

Foundry Technology (Cont.)

SOV/1500

Foundrymen and the Foundry Exhibition held in Duesseldorf September 1 to 9, 1956. In this book the delegates present a joint report on the state of art in the foundries and research institutes which they visited. The book contains many photographs and diagrams of the machinery and equipment used in foundries and also photographs of finished foundry products. Illustrations accompany the technical descriptions and technical data. One chapter deals with leading German foundries and the major automotive and machine-building plants which maintain their own foundries. Another chapter deals with research and scientific institutes in Germany in which problems of melting and casting are studied. Finally, the authors attempt to evaluate German methods and techniques and compare them with their own. There are no references.

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Foundry Technology (Cont.)

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LUPYREV, I. I. (Engr.) KONONOV, D. R., (Prof., Dr. Tech. Sci.) GULYAYEV, B.B.

"Prevention of Hot Cracks"

in book - Improving the Quality of Steel Castings; Transaction of the All-Union Conference, Moscow, Mashgiz, 1958. 214 p.

The authors discuss methods of preventing hot cracks in castings caused primarily by clinging of the sand mold to the casting as the latter shrinks and by unsatisfactory mechanical properties of the steel at the crystallization temperature. It is recommended that the mold be designed so as to lessen its grip on the casting during shrinkage. This may be accomplished by making the mold more flexible, & by maintaining definite distances between flask ribs and projecting parts of the casting. etc. The casting may be strengthened during the solidification period by the use of external coolers and by keeping the sulfur content of the casting below 0.045 percent.

Gulyayev
FANTALOV, L.I., doktor tekhn.nauk, otvetstvennyy red.; GULYAYEV, B.B.,
doktor tekhn.nauk, otvetstvennyy red.; CHERNOV, A.N., red.izd-va;
PRUSAKOVA, T.A., tekhn.red.

[Hydrodynamics of molten metals] Gidrodinamika rasplavlennykh metalov;
trudy pervogo soveshchaniya po teorii liteynykh protsessov. Moskva,
Izd-vo Akad. nauk SSSR, 1958. 257 p. (MIRA 11:5)

1. Soveshchaniye po teorii liteynykh protsessov. 1st, 1955.
(Founding)

21(8)	ISSUE I 1957	104
<p>Vsesoyuznyy nauchno-issledovatel'skiy tsentr prikladnoy fiziki i matematiki (VNIIFM) i ikh rol' v razvitiyakh nauki i tekhnologii. Moscow, 1957.</p>		
<p>Trudy... Nauchno-issledovatel'skiy tsentr prikladnoy fiziki i matematiki (VNIIFM) i ikh rol' v razvitiyakh nauki i tekhnologii. Moscow, 1957. 355 p. 4,500 copies printed.</p>		
<p>Sponsoring Agencies: USSR. Glavnoye upravleniye po ispol'zovaniyu atomnoy energii, and Akademiya nauk SSSR.</p>		
<p>Editorial Board of Sets: V.I. Dikushin, Academician (Resp. Ed.); N.M. Shumilovskiy (Deputy Resp. Ed.); Yu. S. Zaslavskiy (Deputy Resp. Ed.); L.I. Tatchenko, B.I. Verkhovskiy, G.T. Nazarov, L.A. Petrenko and N.G. Zeleninskaya (Secretary).</p>		
<p>Ed. of Publishing House: P.M. Belyanin; Tech. Ed.: Y.P. Polonova.</p>		
<p>PURPOSE: This book is intended for specialists in the field of machine and instrument manufacture who use radioactive isotopes in the study of materials and processes.</p>		
<p>COVERAGE: This collection of papers covers a very wide field of the utilization of tracer methods in industrial research and control techniques. The topic of this volume is the use of radioisotopes in the machine-and-instrument-manufacturing industry. The individual papers discuss the applications of radioisotope techniques in the study of metals and alloys, problems of friction and lubrication, metal cutting, engine performance, and defects in metals. Several papers are devoted to the use of radioisotopes in the automation of industrial processes, recording and measuring devices, quality control, flowmeters, level gauges, safety devices, radiation counters, etc. These papers represent contributions of various Soviet institutes and laboratories. They were published as the proceedings of the 1st All-Union Conference on the Application of Stable Isotopes and Radiation in the National Research and Science, April 4-12, 1957. No personalities are mentioned. References are given at the end of most of the papers.</p>		
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PHASE I BOOK EXPLOITATION

2657/2592

Akademika nauk SSSR. Institut mashinovedeniya

Семьдесят лет со дня рождения академика В. А. Козлова, посвященные его научным и педагогическим заслугам, посвященным в 1978 году. Издательство "Машиностроение", Москва, 1978. 48 с. 4,50 копеек.

564: A.M. Gavrilov, Doctor of Technical Sciences, Professor;
Tech. Ed.: B.I. Model'; Managing Ed. for Literature on Metal
Working and Tool Making (Mashgiz): R.D. Meyzel'man, Engineer.

PURPOSE: This collection of articles is intended for engineering and scientific workers and for teachers and students of machine and instrument building vtuzes.

NOTES: This collection of articles presents the works of a conference on basic problems of accuracy, interchangeability and engineering measurements, convened in March 1956 by the Machine Engineering Technology Commission at IMKh AN SSSR (Institute of Machine Construction of the Academy of Sciences, USSR), the State Committee for Modern Technology, the Committee on Council of Ministers USSR, and the State Institute for Standards of the Ministry of Higher Education of the USSR. In the articles dealing with accuracy of fabrication problems of the theory and practice of calculating accuracy of standard processes and standard products are discussed. In the articles on interchangeability and engineering measurements an evaluation of the present state of this field is presented along with the scientific and engineering outlook for the future. Theoretical and practical problems of automatic inspection are discussed. 26 personalities are mentioned. There are 140 references of which 121 are Russian, 10 German, 8 English, 1 French.

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Rigidity of the Manufacturing System and Its Effect on
the Accuracy of Mechanical Machining**

Rehmeister, D.M., Doctor of Technical Sciences, Professor.
Influence of Physical-technical Factors on Machining
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***Yakovson, M.O., Doctor of Technical Sciences, Professor.**
Problems of the Relation Between Dimensional Accuracy
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OLYANOV, B. B., Doctor of Technical Sciences, Professor, and **I. I. Goryunov**, Candidate of Technical Sciences. Accuracy Increase in Castings

6/4/78

GULYAYEV B. B.

PHASE I BOOK EXPLOITATION 1216

Soveshchaniye po teorii liteynykh protsessov. 2d, Moscow, 1956

Zatverdevaniye metallov; trudy soveshchaniya... (Solidification of Metals; Transactions of the Second Conference on the Theory of Foundry Processes) Moscow, Mashgiz, 1958. 532 p. 3,500 copies printed.

Sponsoring Agencies: AN SSSR. Institut mashinovedeniya. Komissiya po tekhnologii mashinostroyeniya; and AN SSSR. Institut metallurgii.

Ed. (Title page): Gulyayev, B.B., Doctor of Technical Sciences, Professor; Ed. (Inside book): Novikov, P.G., Candidate of Technical Sciences; Ed. of Publishing House: Chernysheva, N.P.; Tech. Ed.: Uvarova, A.F.; Managing Ed. for Literature on Heavy Machine Building: Golovin, S.Ya., Engineer.

PURPOSE: This book is intended for a wide circle of engineers, technicians, and scientists working in the fields of general metallurgy, physical metallurgy, and the production of castings.

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Solidification of Metals (Cont.)

1216

COVERAGE: The book is a collection of 29 papers concerned with the determination of fixed patterns of metal solidification and also with the determination of favorable conditions for the production of sound castings. The authors discuss heat phenomena in metallic and sand molds, properties of mold materials, conditions of solidification of castings in shell molds, kinetics of the warming-up of porous bodies (molds), effect of alloy composition on the solidification process, conditions for the development of a zonal structure and of chemical heterogeneity of castings, and other matters of current interest. There are also discussions of the use of model testing and radioactive isotopes for studying solidification. No personalities are mentioned.

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GULYAYEV, B.B

AUTHOR: Makel'skiy, M. F.

30-58-4-22/44

TITLE: Research on Metal Crystallization
(Issledovaniya po kristallizatsii metallov)
Conference at the Institute for Machine Engineering
(Soveshchaniye v Institute mashinovedeniya)

PERIODICAL: Vestnik Akademii Nauk SSSR, 1958, Nr 4
pp. 104-105 (USSR)

ABSTRACT: This conference on metal crystallization took place from January 28 - 31. It was the fourth conference organized by the Comission for Machine-Building Technology of the Institute for Machine Engineering of the AS USSR during the last years. Representatives of the academic and branch institutes, of plants and technical colleges, as well as foreign scientists took part in it. B. B. Gulyayev gave a survey on the present situation of crystallization research and of that of metal properties , as well as on the problems in this field. In the majority of reports besides theoretical research also suggestions for an improvement of the quality of metal casts of steel, cast iron and

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Research on Metal Crystallization
Conference at the Institute for Machine Engineering

30-58-4-22/44

non-ferrous metals were dealt with. Further reports were:

- 1) N. N. Sirota on a general physical and mathematical theory of the formation and growth of crystals.
- 2) K. P. Bunin on the formation properties of graphite
Yu. N. Taran separations in eutectic alloys.
- 3) B. Ya. Lyubov on analytical research results of the hardening process.
- 4) A. G. Spasskiy on essential factors exercising an influence on the structure of the cast.
- 5) M. V. Mal'tsev on the direction of crystallization processes.
- 6) O. N. Magnitskiy on the effect of the composition of
A. A. Demidova the alloy on the crystallization and
B. B. Gulyayev the properties of casts.
- 7) I. L. Mirkin on the effect of concentration fluctuations on the crystallization of complicated alloys.
- 8) G. F. Balandin on the mathematical theory of cast iron crystallization.

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- 9) D. S. Kamenetskaya on the results of experiments
E. P. Rokhmanova on the crystallization kinetics
Ye. E. Spektor of iron and its alloys.
- 10) I. A. Shapranov on the rules of the development
E. V. Petrova of the deficiency in carbon of
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- 11) B. S. Mil'man on the part played by the surface
tension of the degassing process and
of the desulfurization in cast iron
crystallization.
- 12) Ya. N. Malinoch on the effect of inner-crystalline
A. A. Zhukov silicon segregation on the structure
of cast iron.
- 13) D. Chikl' (DDR) on graphite and cast iron
crystallization.
- 14) I. V. Sali on research methods for alloy structures.
- 15) N. I. Khvorinov (Czechoslovakia) on the formation
of crystallization.

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- 16) G. P. Ivantsov on the conditions of the cooling regime of the block.
- 17) N. N. Guglin on a new method for the determination of mechanical properties of a metal
A. A. Novikova in the case of a great temperature interval.
B. B. Gulyayev
- 18) V. Ye. Neymark on the methods and research results on the effect of different transformers on the crust deformation and the hardening velocity of the block.
- 19) V. G. Gruzin on problems of the formation of primary structure in constructional steel.
P. I. Yamshanov
N. P. Neverova
- 20) I. I. Goryunov on the modification effect on the structure and on the physical and mechanical properties of high-alloyed steels.

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Research on Metal Crystallization
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- 21) F. F. Khimushkin on the formation of the
 F. V. Aksenov heterogeneity in heat-resistant
 E. Ya. Rodina alloys in crystallization and
 heat treatment.
- 22) N. L. Pokrovskiy on the crystallization properties
 D. Ye. Ovsienko of various non-ferrous metal alloys.
- 23) N. N. Belousov on research results on the
 A. A. Dodonov crystallization and the properties of
 non-ferrous metal alloys under
 pressure.

Reports were also delivered on the metal crystallization in welding, ultra-sonic treatment a. o. In the final conclusion suggestions for the introduction of a number of methods were accepted and the principal directions of further research in metal crystallization were outlined.

1. Metallic crystals—Theory 2. Metallurgy—USSR

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SOV/123-59-15-60468

Translation from: Referativnyi zhurnal. Mashinostroyeniye, 1959, Nr 15, p 223 (USSR)

AUTHORS: Postnov, L.M., Gulyayev, B.B.

TITLE: Investigations of the Effect of Metal Solidification During the Mold Filling Process on the Quality of Steel Castings

PERIODICAL: V sb.: Zatverdevaniye metallov. Moscow, Mashgiz, 1958, pp 374 - 396

ABSTRACT: Owing to the heating effects of the flow of overheated metal the solidification of castings in the zones (Z) near the gate is taking place more slowly; even the smelting of the solid skin, forming at the beginning, might occur. These Z solidified late might even get isolated from the supply sources (gate systems, heads) and therefore develop into Z of the greatest shrinkage porosity. Investigations were carried out for a quantitative analysis of the mentioned phenomena as applied to plate castings of carbon steel. The rated formulae are derived and the results of the tests for the determination of the duration of the solidification process and the density of the castings in the Z near the gates are stated. Particularly the distribution of the density and σ_b over the length of plates with dimensions of 1,100 · 325 mm and thicknesses of 10, 20, 30,

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Investigations of the Effect of Metal Solidification During the Mold Filling Process
on the Quality of Steel Castings

and 50 mm, cast in vertical and horizontal positions, was determined. Besides, in these tests the temperature and speed of casting, the quantity of metal which was poured through the gates (for this the number of gates and the size of the heads were varied) and the relative layout of gate and heads were varied. The density was determined by X-raying and gravimetric analysis of cut-out templets. A decrease in density was always accompanied by a corresponding reduction of σ_b . With horizontal casting the Z of porosity was more extensive than with vertical casting, e.g. for a cast plate of 30 mm thickness the porosity zone started at a distance of 60 - 80 mm from the gate and spread out over the length of the plate up to 200 - 300 mm. The contour of the porosity Z corresponds to the shape of the flow when flowing out under a submerged level (the Z expands in the shape of a fan in direction from the gate). A rise of the temperature of the metal and an increase in its quantity, poured through the gate, leads to a considerable reduction of the density of the casting in the Z near the gate. The effects of the casting speed and the thickness of the casting are slight. Based on the investigations, practical recommendations for avoiding the porosity in steel castings in the Z near the gate are

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Investigations of the Effect of Metal Solidification During the Mold Filling Process on the Quality of Steel Castings

given: casting in a vertical position, dispersed metal supply, adjustment of the heads above the gates (or at least at no greater distance than 2-3 times wall thickness), casting temperature as low as possible. 22 figures.

O.S.M.

Card 3/3

AUTHOR: Gulyayev, B.B.

SOV/24-58-4-37/39

TITLE: Conference on Crystallisation of Metals (Soveshchaniye po kristallizatsii metallov)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 4, pp 153 - 155 (USSR)

ABSTRACT: This conference was held at the Institut mashinovedeniya AN SSSR (Institute of Mechanical Engineering of the Ac.Sc. USSR) on June 28-31, 1958. About 400 people participated and the participants included specialists in the fields of foundry, metallurgy, crystallography, physics, welding, heat, physical chemistry, mathematical physics and other related subjects. In addition to Soviet participants, foreign visitors included Professor D. Cziki (East Germany) and N.I. Chvorinov (Czechoslovakia). This conference on crystallisation of metals was the fourth conference relating to the general problem of the theory of foundry processes. The first, in 1950, was devoted to the hydrodynamics of molten metals; the second, 1956, was devoted to the solidification of metals; the third, in 1957, dealt with settling processes in castings. The 1958 conference

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Conference on Crystallisation of Metal

completed the cycle of problems relating to the production of metal castings. 48 papers were read, which were extensively discussed. In his opening address Academician V.I. Dikushin characterised the state of the problems of crystallisation of metals, its importance from the point of view of foundry process and metallurgy; he outlined the tasks of the conference and also gave a general review of the results of scientific investigations and production experience in the field of study of crystallisation of metals and improvement in the quality of castings from cast iron, steel and non-ferrous metals.

In his paper "Present State and Problems of Studying Crystallisation of Metals", B.B. Gulyayev analysed the existing use and processes of formation of the structure of castings and described concrete results of his investigations of the influence of speed of cooling and of inoculation on the structure and properties of cast metals.

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Conference on Crystallisation of Metals

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General Problems of Crystallisation of Metals

Member of the Ac.Sc. Belorussian SSR N.N. Sirota, in his paper "On the Mechanism of the Process of Crystallisation", proposed a general physico-mathematical theory on germination and the growth of crystals and described its application to problems of crystallisation of metals.

Corresponding Member of the Ac.Sc. Ukrainian SSR K.P. Bunin and Yu.N. Taran, in their paper "Eutectic Crystallisation of Grey Irons", considered the features of formation of graphite separations in eutectic alloys from the point of view of the general theory of crystallisation of iron.

B.Ya. Lyubov, in his paper "Calculation of the Speed of Solidification of Metals in Large Volumes", proposed a synthesis of the molecular-kinetic and of the thermal theories of crystallisation of metallic castings.

A.G. Spasskiy, in the paper "Fundamental Factors Influencing the Structure of Castings" and M.V. Mal'tsev in the paper "Methods of Improving the Quality of Cast Metal", described results of their investigations of crystallisation

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of castings from various alloys and considered methods of controlling such processes.

I.L. Mirkin dealt with the influence of fluctuations in the concentration on the formation of crystallisation nuclei and formation of crystals in complex alloys.

G.P. Ivantsov gave a review of the present concepts on germination and the growth of crystals. O.N. Magnitskiy, A.A. Demidova and B.B. Gulyayev considered the influence of the speed of crystallisation and the composition of the alloys on the quantitative characteristics of the structure and the mechanical properties of castings of the systems iron-carbon and aluminium-silicon. D.S. Kamenetskaya, E.P. Rakhmanova and Ye.Z. Spektor dealt with the results of investigation of the kinetics of crystallisation of iron and its alloys. G.F. Balandin proposed a mathematical theory of formation of the structure of castings and applied it for elucidating the features of crystallisation of iron. Ya.V. Grechnyy dealt with the features of crystallisation of binary alloys of various types.

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Conference on Crystallisation of Metals

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Crystallisation of Cast Iron. I.A. Shapranov and E.V. Petrova, in their paper "Investigation of the Crystallisation of magnesium-inoculated iron", reported on experimental data relating to the conditions of solidification and the structure of castings made of magnesium-inoculated iron; they presented a theory of crystallisation of magnesium-inoculated iron. B.S. Mil'man, in his paper "Investigation of the Process of Formation of Spheroidal Graphite in Iron", considered the influence of various factors and characteristics of the metal on the formation of graphite inclusions. Professor D. Cziki (East Germany) presented a paper on crystallisation of graphite in cast iron, which was illustrated by extensive metallographical information. Ya.N. Malinochka and A. Zhukov dealt with the problem of intracrystalline liquation of silicon and its influence on the structural diagram of cast iron. I.I. Khoroshev and I.Ye. Lev dealt with the mechanism of germination of centres of crystallisation of graphite in castings made of white iron and the influence of the speed of crystallisation on the distribution of alloying

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Conference on Crystallisation of Metals

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elements between the individual phases of iron-carbon alloys. I.V. Salli proposed a method of hardening of alloys from the liquid state using an extremely high speed of cooling; investigations relating to this method enabled conservation of saturated solutions of carbon in iron which correspond to the liquid state. E. Ya. Khrapkovskiy dealt with the investigation of crystallisation, the primary structure and the properties of quasi-eutectic grey iron.

Crystallisation of Steel and Alloys with Special Properties. The following papers were read:

V.I. Lapitskiy, N.I. Stupar, K.P. Rudachev, V.L. Olekseyenko, A.I. Marinov - "Certain Methods of Reducing Non-uniformities of Large Castings (up to 20 t) made of Rimming Steel"; V.K. Novitskiy, A.B. Mikul'chin and V.V. Blinov - "Influence of Internal Crystallisers on the Structure and Properties of Steel Ingots"; N.I. Chvorimov (Czechoslovakia) - "On the Crystallisation of Steel"; A.P. Pronov - "Crystallisation of Continuously Cast Ingot and Influence on it of the Properties of Liquid Steel"; L.I. Morozenskiy and O.D. Zigel -

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Conference on Crystallisation of Metals

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"Influence of Movement of the Metal in the Liquid Core on the Crystallisation of Steel Ingots and Castings"; N.N. Guglin, A.A. Novikova and B.B. Gulyayev - "Crystallisation and Mechanical Properties of Steels at Elevated Temperatures"; V.Ye. Neymark - "Influence of Inoculation^{substances} on the Deformation of the Crust and the Speed of Solidification of Ingots"; G.P. Ivantsov - "Thermal Stresses and Deformation in the Crust of a Crystallising Ingot"; V.G. Gruzin and P.I. Yamshanov, N.P. Neverova dealt with problems of formation of the primary structure of structural steel and the influence on it of the temperature of pouring. The features of crystallisation of castings made of alloys with special properties and of austenitic steels were dealt with in the following papers: I.I. Goryunov - "Influence of Inoculation on the Structure and on the Physico-mechanical Properties of High-alloy Steels"; F.F. Khimushin, F.V. Aksenov, N.F. Lashko and E.Ya. Rodina - "Occurrence of Non-uniformities in High-temperature alloys During Crystallisation and Heat Treatment" and "Experimental Investigation of the Process

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of Crystallisation of Cast Blades Made of Refractory Alloys"; A.M. Yuferov considered the process of recrystallisation of steel.

Crystallisation of Non-ferrous Metals. N.N. Belousov and A.A. Dodonov - in their paper "Investigation of the

Crystallisation and the Properties of Non-ferrous Metals Under Conditions of Applying Pressure", presented results of experiments on producing castings which crystallise

under pressure from all sides and piston pressure within a wide range of specific loads. The results of the investigation provide material for improving existing

methods of applying pressure to influence the crystallisation of alloys. The influence of the conditions of crystallisation on the casting and mechanical properties of

aluminium alloys, at normal and at elevated temperatures, were discussed in the papers of I.F. Kolobnev and A.Ye. Semenov. The results of investigations of the

conditions of crystallisation of aluminium alloys during continuous casting were presented in the paper of Ye.D. Zakharov. N.L. Pokrovskiy and D.Ye. Ovsiyenko

Card8/10 dealt with the features of crystallisation of various

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non-ferrous alloys and the physico-chemical phenomena accompanying this process.

Crystallisation of Metals in the Welding Bath. The following papers were read: B.A. Movchan - "Investigation of the Features of the Microscopic Chemical Non-uniformity in Alloys"; G.L. Petrov - "Crystallisation and Chemical Non-uniformity in Weld Joints"; M.Kh. Shorshorev and V.S. Sedykh - "Influence of Non-uniformities of Crystallisation in the Weld Bath on the Formation of Hot Cracks".

Crystallisation of Metals in an Ultrasonics Field.

The following papers were read: Member of the Ac.Sc.

Belorussian SSR N.N. Sirota, Ye.L. Lekhtblad and E.M. Smolyarenko - "Crystallisation of Metals and Alloys in an Ultrasonics Field"; I.I. Teumin - "Influence of Elastic Oscillations on the Processes of Crystallisation and the technological properties of Alloys"; L.L. Silin and A.A. Yerokhin - "Effect of Ultrasonics on Crystallising Metal in the Weld Bath".

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In the resolutions, the results were evaluated in the field of crystallisation of metals, technological measures were recommended for introduction and the trends of further study of the problem were outlined. The Institute of Mechanical Engineering of the Ac.Sc.USSR was also entrusted with the organisation in 1959 of the fifth conference on the theory of castings processes, which should deal with problems of accuracy of castings.

Card 10/10

GULYAYEV, B.B., doktor tekhn.nauk, prof.; POPOV, N.V., inzh.

Investigating the state of sulfur in liquid steel. Izv. vys. ucheb.
zav.; chern.met. no.5:29-32 My '58. (MIRA 11:7)

1. Leningradskiy nauchno-issledovatel'skiy institut.
(Desulfuration) (Steel--Metallurgy)

GULYAYEV, B.B.

Conditions of the founding industry in the German Federal Republic.
Biul.tekh.-ekon.inform. no.9:85-88 '58. (MIRA 11:10)
(Germany, West--Founding)

GULYAYEV, B.B.

Precision casting abroad. [Izd.] LONITOMASH 45:5-17 '58.

(MIRA 11:6)

(Founding)

GULYAYEV B B

А.И.Пирогов	Влияние отдельных элементов на свойства стали в процессе кристаллизации
О.Д.Мельников	
Л.М.Белкин	
Ю.С.Григорьев	
М.А.Давыдов	Влияние условий роста на структуру мелкозернистой стали
В.Д.Харченко	
Э.И.Тютин	
С.Я.Соболев	Закалкаемость и закалочность арматурной стали при различных конфигурациях
Е.А.Козлов	
В.А.Мельников	
Е.А.Козлов	Технологические условия закалки арматурной стали
С.Я.Соболев	
Ю.И.Савин	Влияние на коррозионные свойства стали
В.А.Лавренко	
В.В.Гусев	
А.М.Прохоров	Исследование свойств стали в условиях длительного хранения
В.И.Лавренко	
В.М.Лавренко	
В.В.Гусев	
Н.Н.Гусев	Исследование свойств арматурной стали
А.А.Маслов	
А.А.Новиков	
В.В.Гусев	

report submitted for the 5th Physical Chemical Conference on Steel Production, Moscow— 30 Jun 1959.